

WHAT IS CLAIMED IS:

1. A graphing calculator having a points of interest user interface comprising:
 - a screen capable of displaying at least straight lines in any direction and a cursor;
 - a key panel having keys at least capable of selecting positions of said cursor and moving said cursor horizontally or vertically on said screen;
 - a processor for executing programming that provides a points of interest user interface having the following steps:
 - a) providing an input display to allow the user to define a plurality of equations, inequalities and vertical lines,
 - b) graph the defined equations, inequalities and vertical lines,
 - c) provide a points of interest display screen, and
 - d) allow the user to jump the cursor between intersection points with a single key command on the points of interest display screen.
2. The graphing calculator of Claim 1, wherein said processor is further programmed to store the location of the cursor at desired points with a store command that comprises a single key stroke.
3. The graphing calculator of Claim 2, wherein said processor is further programmed to allow the user to display the stored points of interest and use the stored points of interest for other calculator functions.
4. The graphing calculator of Claim 1, wherein said processor is further programmed to input equations, inequalities and lines using a Y=Editor and an X=Editor.
5. The graphing calculator of Claim 1, further comprising an indication on the display of the current coordinates of the cursor.

6. The graphing calculator of Claim 1, further comprising an indication on the display of which equation, inequality or vertical lines contributed to the point of interest indicated at the cursor location.

7. The graphing calculator of Claim 6, wherein the indication on the display of which function or vertical lines contributed to the point of interest indicated at the cursor location includes the intersection symbol for equations that include the line and does not use the intersection symbol for strict inequalities.

8. A graphing calculator having a points of interest display comprising:
a screen capable of displaying at least straight lines in any direction and a cursor;

a key panel having keys at least capable of selecting positions of said cursor and moving said cursor horizontally or vertically on said screen;

a processor for executing points of interest programming that instructs said processor to perform the following steps:

- a) providing an input display to allow the user to define equations and vertical lines,
- b) graph the defined equations and vertical lines,
- c) provide a points of interest display,
- d) allow the user to jump the cursor between intersection points with a single key command which moves the cursor to another point of interest with each key activation, and
- e) allow the user to store the location of the cursor at desired points with a store command.

9. The graphing calculator of Claim 8, wherein said processor is further programmed to allow the user to display the stored points of interest and use the stored points of interest for other calculator functions.

10. The graphing calculator of Claim 9, further comprising an indication on the display of the current X and Y coordinates of the cursor.

11. The graphing calculator of Claim 10, further comprising an indication on the display of which function or vertical lines contributed to the point of interest indicated at the cursor location.

12. The graphing calculator of Claim 11, wherein the indication on the display of which function or vertical lines contributed to the point of interest indicated at the cursor location includes the intersection symbol for equations that include the line and does not use the intersection symbol for strict inequalities.

13. The graphing calculator of Claim 8 further comprising an algorithm to compute intersection points using a numerical root-finder which uses XMIN and XMAX for the graph window as the upper and lower bounds on the solution and the initial guess taken as the current cursor position.

14. The graphing calculator of Claim 8 further comprising an algorithm to compute intersection points of linear inequalities to find the points of interest around the boundary of a solution set to the linear inequalities by iterating the Simplex algorithm.

15. A software user interface for a graphing calculator having the following steps:

- a) providing an input display to allow the user to define a plurality of equations, inequalities and vertical lines,
- b) graph the defined equations, inequalities and vertical lines,
- c) provide a points of interest display screen, and
- d) allow the user to jump the cursor between intersection points with a single key command on the points of interest display screen.

16. The user interface of Claim 15, wherein said processor is further programmed to store the location of the cursor at desired points with a store command that comprises a single key stroke.

17. The user interface of Claim 16, wherein said processor is further programmed to allow the user to display the stored points of interest and use the stored points of interest for other calculator functions.

18. The user interface of Claim 15, wherein said processor is further programmed to input equations, inequalities and lines using a Y=Editor and an X=Editor.

19. The user interface of Claim 15, further comprising an indication on the display of which equation, inequality or vertical lines contributed to the point of interest indicated at the cursor location.

20. The user interface of Claim 19, wherein the indication on the display of which function or vertical lines contributed to the point of interest indicated at the cursor location includes the intersection symbol for equations that include the line and does not use the intersection symbol for strict inequalities.

21. The user interface of Claim 15 further comprising an algorithm to compute intersection points using a numerical root-finder which uses XMIN and XMAX for the graph window as the upper and lower bounds on the solution and the initial guess taken as the current cursor position.

22. The user interface of Claim 15 further comprising an algorithm to compute intersection points of linear inequalities to find the points of interest around the boundary of a solution set to the linear inequalities by iterating the Simplex algorithm.